RANUNCULUS GERANIOIDES H.B.K. EX DC. IN COSTA RICA AND PANAMA

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Authors of recent floras and previous authorities on *Ranunculus* have reported *R. repens* L. and *R. pilosus* H.B.K. ex DC. from Costa Rica and Panama (Standley, 1937; Benson, 1948; Duke, 1962). Recent studies of the *Ranunculus hispidus* Michx. complex have revealed that *R. geranioides* H.B.K. ex DC. has been treated erroneously as *R. pilosus* H.B.K. ex DC. (Benson, 1948; Duke, 1962) and occurs in both Costa Rica and Panama. The purpose of this paper is to note these corrections to the floras of Costa Rica and of Panama and to document the distribution of *R. geranioides* and its differences from *R. repens* in these countries.

Sepals reflexed; petals lanceolate, commonly 7–10, rarely 5; achenes papillate . . . . . 1. *R. geranioides*
Sepals patent; petals obovate, commonly 5, rarely as many as 10; achenes smooth . . . . . 2. *R. repens*

1. *Ranunculus geranioides* H.B.K. ex DC. Syst. 1: 286. 1818

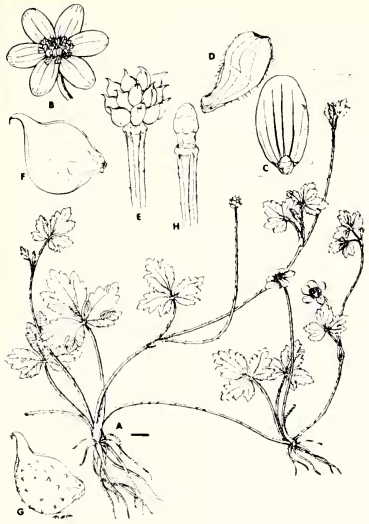
Plants stoloniferous and rhizomatous; sepals reflexed, 4.0–7.0 mm long, 2.0–3.5 mm wide, one-half to fully as long as the petals; petals yellow, (5)7–10, 6.0–11.7 mm long, 2.8–6.0 mm wide, the widest point above the middle; nectary scale obovate; achene wall with minute to conspicuous papillae, achene beak one-third to one-half as long as the body, the tip often slightly curved and tapering from a broad base; $n = 16$ (Panama, *Duncan 2331*).

FLOWERING AND FRUITING DATES: Throughout the year.

HABITATS: Paramos, meadows, fields, streambanks, and roadsides.

DISTRIBUTION: Primarily South American from Colombia to northern Peru; northern limit of range on Volcán Baru, Chiriquí Province, Panama, and near Orosi and on Volcán Turrialba in Costa Rica; 1300–3300 m in Costa Rica and Panama.

SPECIMENS EXAMINED: Costa Rica: *Cartago:* At foot of Orosi waterfall, 5 May 1957, *Rodriguez C. 428* (UC, MICH). Volcán Turrialba, 2000 m, Jan 1899, *Pittier 7550* (GH). Volcán Turrialba, ca. 3300 m, 13 Feb 1922, *Greenman and Greenman 5582* (MO). Volcán Turrialba, 2900 m, 17 Sep 1969, *Weston and Kincaid 6136* (UC). Volcán Turrialba, ca. 20 km by road above Turrialba and 8 km by road N of Pastora, 7000 ft, 16 Feb 1974, *Duncan 2314* (MICH, UC). *San José:* Potrero of Finca Santa Rosa north of El Alto de Cabeza de Vaca on Río Sucio, 14 Nov 1929, *Dodge and Thomas 4949* (MO). Sables du Río Parrita au Copey,



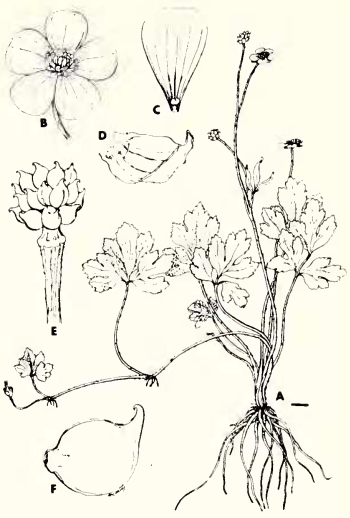


Fig. 1. (Left) *Ranunculus geranioides* from Colombia. A. Whole plant. B. Flower. C. Petal. D. Sepal. E. Infructescence. F. Achene. G. Achene (from Volcán Baru, Panama). H. Receptacle. Scale line represents ca. 3 cm in A, 1.5 mm in C and D, 5 mm in B, 2 mm in E and H, and 1 mm in F and G.

Fig. 2 (Right) *Ranunculus repens* from Volcán Turrialba, Costa Rica. A. Whole plant. B. Flower. C. Petal. D. Sepal. E. Infructescence. F. Achene. Scale line represents ca. 3 cm in A, 1.5 mm in C and D, 5 mm in B, 2 mm in E, and 1 mm in F.

1800 m, Feb 1898, *Tonduz 11873* (GH). PANAMA: *Chiriquí:* Valley of the upper Rio Chiriquí Viejo, vicinity of Monte Lirio, 1300–1900 m, 27 Jun–13 Jul 1935, *Siebert 159* (MO). Along the trail between Cerro Punta and the Quebrado Bajo Grande, 2000–2100 m, 28 May 1970, *Wilbur 11924 with Luteyn and Armond* (GH, DS, MO). Along Quebrado Bajo Grande below road to Cerro Punta and ca. 1 km from Cerro Punta, 6000 ft, 24 Feb 1974, *Duncan 2331* (MICH, UC). Vic. of Bajo Chorro, 1900 m, 20–22 Jul 1940, *Woodson and Scherry 646* (GH). Boquete District, Bajo Chorro, 7000 ft, 26 Mar 1938, *Davidson 444* (GH).

The name most frequently applied to these populations, *R. pilosus* H.B.K. ex DC. is based on material collected by Humboldt and Bonpland in Colombia. This name is currently treated as a synonym of *R. praemorsus* var. *praemorsus* (Duncan, 1979), which is widely distributed in the Andean paramos from Venezuela to Argentina. Earlier authors treated *R. pilosus* as conspecific with *R. petiolaris* H.B.K. ex DC. var. *petiolaris*. The latter is a widespread Mexican, Central American, and northern South American taxon and is what earlier workers thought *R. geranioides* to be. Benson (1948) emphasized the lack of stolons for *R. petiolaris* var. *petiolaris*. However, the plants from Costa Rican and

Panamanian populations are distinctly stoloniferous. Additionally, the short, stout-based, slightly curved achene beaks, clavate receptacles, and fibrous roots readily distinguish *R. geranioides* from *R. petiolaris* var. *petiolaris,* which possesses long, easily broken, straight achene beaks, conical receptacles, and tuberous roots. The illustration in Duke (1962) is not from material of *R. geranioides* from Panama. Apparently a specimen of *R. petiolaris* var. *petiolaris* was used. This taxon does not occur in Panama or Costa Rica.

An additional specimen of *Davidson 444* is reported to be at MO. A search of their collections has not resulted in the discovery of this duplicate. Duke (1962, based on the identification of Benson) reports that this specimen is *R. repens.* I doubt this report because *R. repens* is currently not known to occur in Panama and the duplicate at GH is *R. geranioides.*

2. *Ranunculus repens* L. Sp. Pl. 554. 1753.

Plants stoloniferous and rhizomatous; sepals appressed 4.0–6.0 mm long, 2.0–4.0 mm wide up to two-thirds as long as the petals; petals yellow 5–7 (10), 6.0–10.0 mm long, 5.0–12 mm wide, the widest point above the middle; nectary scale flabellate; achene wall smooth, the margin narrow, inconspicuous, or absent; achene beak less than one-third as long as the body, the tip slightly curved and tapering from a broad base; $n = 16$ (Costa Rica, *Duncan 2302*).

Flowering and Fruiting Dates: Throughout the year.

Habitats: Disturbed roadsides, fields, and wet meadows.

Distribution: Native of Europe with a cosmopolitan distribution; in Costa Rica in the provinces of Cartago, Heredia, and San José; 1500–2500 m.

Specimens Examined: Costa Rica: *Cartago:* Near stream, beyond Pacayas, 9 Jun 1957, *Rodriguez C. 471* (UC). Lower potrero of Finca Coliblanco, 1620–1910 m, 17 Oct 1929, *Dodge and Thomas 4530* (MO). Volcán Turrialba, ca. 2900 m, 17 Sep 1969, *Weston and Kincaid 6135* (UC). Volcán Turrialba, ca. 20 km by road above Turrialba at town of Pastora, 7000 ft, 16 Feb 1974, *Duncan 2314* (MICH, UC). *Heredia:* Along roadside between Los Cartagos and Vara Blanca on road to Volcán Poás, 6000 ft, 20 Feb 1974, *Duncan 2322* (MICH, UC). Vara Blanca de Sarapiqui, north slope of Central Cordillera, 1500–1750 m, Jul–Sep 1937, *Skutch 3249* (MO, GH). *San José:* Potreros of Rancho Redondo, 2200–2600 m, 18 Nov 1929, *Dodge and Thomas 4946* (MO). La Palma, 1460 m, Aug 1898, *Tonduz 7402* (GH). *State Unknown:* Vic. of Los Nubes, 1800 m, 1 Dec 1937–1 Jan 1938, *Allen 714* (GH).

The three specimens cited by Duke (1962) as *R. repens* from Panama are treated here as *R. geranioides. Ranunculus repens* is currently not known to occur in Panama. Standley (1937) included all material of *R. geranioides* in *R. repens.* He was correct in doubting the previous treatment of these populations as *R. petiolaris* var. *petiolaris* (*R. pilosus*

sensu other authors) but apparently considered no possibilties other than *R. repens*. Standley (1937) suggested that *R. repens* was introduced from Europe with grass seed.

Acknowledgments

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NOTEWORTHY COLLECTIONS

Ed. Note: With this issue a new format is inaugurated for "range extensions" and similar notes. Its purpose is to provide a greater array of useful data in more telegraphic style than has been customary. Prospective authors of these notes should study carefully the conventions of the new format.

Teesdalia coronopifolia (Bergeret) Thellung (Cruciferae).—USA, CA, Sonoma Co., W edge Santa Rosa, SW of intersection of Fulton and Piner roads, locally common in wet areas with *Blennosperma,* 7 Mar 1977, *C. F. Quibell 1392* (BM, CDA, GH, ROPA, RSA, UC). Basionym: *Thlaspi coronopifolium* Bergeret; for discussion of synonymy, see Thellung, A. 1912. Repert. Spec. Nov. Regni Veg. 10:289–290.

Previous knowledge—Native to S Europe and N Africa; adventive in N Europe. (Herbaria consulted: CAS, DS, JEPS, UC; published sources: Clapham, A. R. et al. 1962. Fl. Brit. Isles, 2nd ed.; Tutin, T. G. et al., eds. 1964. *Fl. Europaea,* vol. 1.) The only other member of the genus, *T. nudicaulis* (L.) R. Br. [≡ *Iberis nudicaulis* L.], is native to W and central Europe and has been recorded as locally adventive in B.C. (Taylor, R. L. and B. MacBride. 1977. *Vasc. Pls. Brit. Columbia*), WA and OR (Hitchcock, C. L. and A. Cronquist. 1973. *Fl. Pacific Northw.*), and in E USA from MA to NC (Fernald, M. L. 1950. *Gray's Man. Bot.,* 8th. ed.). *Diagnostic characteristics*—Our plants differ from *T. nudicaulis* principally in having acutely (vs. bluntly) lobed leaves, subequal (vs. unequal) petals, and 4 (vs. 6) stamens.

Significance—Apparently, first record of species for N.A. (In Gleason, H.A. 1952. *New Britton and Brown Ill. Fl.,* vol. 2, plant figured as *T. nudicaulis* may be *T. coronopifolia*); first record of genus for CA (sources in addition to those cited above: Abrams, L. 1944. *Ill. Fl. Pacific Sts.,* vol. 2; Munz, P. A. 1959. *A Calif. Fl.;* ———. 1968. *Suppl. Calif. Fl.;* ———. 1974. *A Fl. S. Calif.*). The value of documenting introductions and migrations has been discussed by Shinners (1965. Sida 2:119–128) and by Strother and Smith (1970. Taxon 19:871–874).—Charles F. Quibell, Department of Biological Sciences, Sonoma State College, Rohnert Park, CA 94928 and John L. Strother, Botany - Herbarium, University of California, Berkeley 94720.